IRW

PATENT APPLICATION

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant : Shoichi TSUJIGUCHI

Title : WEATHER STRIP FOR CAR AND PRODUCTION METHOD THEREOF

Serial No. : 10/643 469 Group: 1772

Confirmation No.: 4091

Filed : August 19, 2003 Examiner: Thomas

Atty. Docket No.: Furuta 38

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

FIRST CLASS MAILING CERTIFICATE

Sir:

I hereby certify that this correspondence is being deposited with the United States Postal Service under 37 CFR 1.8 as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on June 20, 2006.

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Correspondence: Letter Transmitting Appeal Brief Fee dated June 20, 2006 including enclosures listed thereon

190.05/05

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LETTER TRANSMITTING APPEAL BRIEF FEE

Sir:

Enclosed is Appellant's check in the sum of $500.00 representing payment of the Appeal Brief fee. The Commissioner is hereby authorized to charge any additional fee which may be required by this paper, or to credit any overpayment, to Deposit Account No. 06-1382. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

IN DUPLICATE

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Encl: Appellant's Brief on Appeal
Claims Appendix, Evidence Appendix and Related Proceedings Appendix
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APPELLANT'S BRIEF ON APPEAL

UNDER 37 CFR 41.37

Sir:

This Appellant's Brief on Appeal is filed pursuant to the provisions of 37 CFR 41.37 and is directed to claims finally rejected the Office Action dated October 21, 2005.

REAL PARTY IN INTEREST

Nishikawa Rubber Company, Ltd. is the assignee of the present application and the real party in interest.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences to the present application.

STATUS OF CLAIMS

Claims 2 and 9-17 are pending in the present application. Claims 1 and 3-8 have been canceled. Claims 9 and 10 have been withdrawn from consideration. Claims 2 and 11-17 have been finally rejected and are the claims under consideration on appeal.

STATUS OF AMENDMENTS

The Amendment After Final Rejection dated March 21, 2006 has been entered for purposes of appeal.

SUMMARY OF CLAIMED SUBJECT MATTER

Appellants' invention, as defined by independent Claim 11, is directed to a weather strip for a car. The weather strip comprises a grip for attachment to a flange and a seal part for performing a sealing function (specification page 4, last three lines, and specification page 5, lines 1 and 2). The grip has a U-shaped cross-section and comprises a holder part made of an olefinic rubber or a thermoplastic resin and an insert embedded in the holder part consists essentially of an olefinic thermoplastic elastomer and, optionally, a filler (specification page 2, second full paragraph). The thermoplastic elastomer forming the insert has a Young's modulus in flexure of 2,000 to 5,000 MPa (specification page 2, last paragraph) and the rubber or thermoplastic elastomer forming the holder part has a tensile strength no greater than 2.5 MPa at 100% extension (specification page 3, first full paragraph).

Dependent Claim 2 limits Claim 11 in requiring that the thermoplastic elastomer forming the insert is polypropylene (specification page 2, third full paragraph).

Dependent Claim 12 limits Claim 11 in requiring that the rubber or thermoplastic elastomer forming the holder part have a tensile strength no greater than 2.0 MPa at 100% extension (specification page 6, second full paragraph).

Dependent Claim 13 limits Claim 11 in requiring that the insert consist of the olefinic thermoplastic elastomer and, optionally, the filler (specification page 2, second full paragraph).

Dependent Claim 14 limits Claim 11 in requiring that the filler is at least one of talc and glass fiber (specification page 5, first full paragraph).

Dependent Claim 15 limits Claim 11 in requiring that the sealed part be hollow and integrally molded with the grip (specification page 5, lines 4 and 5).

Dependent Claim 16 limits Claim 11 in requiring that the holder part is made of ethylene-propylene-diene-methylene solid rubber (specification page 5, lines 7 and 8).

Claim 17 limits Claim 11 in requiring that the sealed part be made of ethylene-propylene-diene-methylene sponge rubber (specification page 5, lines 8 and 9).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection to be reviewed on appeal is the rejection of Claims 2 and 11-17 under 35 USC 103(a) as being unpatentable over U.S. Patent No. 5 686 165 to Cook.

ARGUMENT

Appellant's invention, is directed to a weather strip for a car. The weather strip comprises a grip for attachment to a flange and a seal part. The grip has a U-shape cross-section and comprises a holder part made up of an olefinic rubber or a thermoplastic resin and an insert embedded in the holder part. The insert consists essentially of an olefinic thermoplastic elastomer and optionally, a filler. The seal part performs a sealing function and the thermoplastic elastomer forming the insert has a Young's modulus in flexure of 2,000 to 5,000 MPa and the rubber or thermoplastic elastomer forming the holder part has a tensile strength no greater than 2.5 MPa at 100% extension.

With the present invention, it is easy to recycle the materials which form the weather strip. The weather strip is comprised of a grip 2 having a holder part 3 made of an olefinic rubber or thermoplastic elastomer and an insert made of an olefinic thermoplastic elastomer. Since the weather strip is made up of materials having similar physical properties, they can be easily recycled and there is no need to remove an insert from the holder part prior to recycling.

This makes the recycling process less labor intensive and more economical.

An additional feature of the present invention is that it overcomes a problem in the prior art weather strips which are made of a thermoplastic insert embedded in a thermoplastic holder part. Since the insert and the holder part have to be fused with each other by heat, the extension of the holder part is restrained by the insert when the weather strip is bent to be attached to the corner section of a car body. The present invention is based on the discovery that in order to overcome this problem, the tensile strength of the holder part containing an embedded insert having a Young's modulus in flexure of 2,000 to 5,000 MPa should be less than ½ of that of the conventional material, that is, 2.5 MPa or less, preferably 2.0 MPa at 100% extension. By forming the holder part with such a tensile strength, the weather strip can be easily bent and successfully attached to corner sections of a car body. The Cook reference cited by the Examiner does not disclose these features and advantages of the presently claimed invention.

Cook discloses a method of forming a composite extrusion wherein a main body part 1 of the extrusion is first extruded from a thermosetting material and then heated so that it is at least partially cured. The main body portion is then passed at a high temperature through a further extruder where a thermoplastic material 8 is extruded onto one or more surfaces of the main body portion and then the final composite extrusion is cooled and formed into its final shape. The main object of this reference is to provide a weather strip which is less expensive. To obtain this object, the weather strip is mainly made of a thermosetting resin, which is less expensive than a thermoplastic resin, and partially made of a thermoplastic resin. As such, the holder 23, 53, 70 is made of a thermosetting resin and the insert 25 is made of a thermoplastic resin.

As is well known in the art, a thermosetting resin is difficult to recycle since it does not melt once it is hardened or cured, even when reheated. Therefore, most of the materials forming the weather strip disclosed in Cook cannot be recycled. Although the thermoplastic resin formed in the insert 25 can be recycled, it has to be removed from the holder, which requires additional manpower.

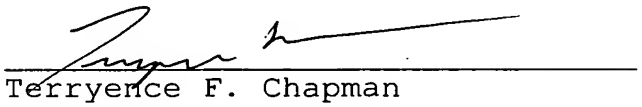
In the Advisory Action, the Examiner states that the instant claims do not preclude the use of a thermosetting material as the holding portion of the weather strip. However, nothing in Cook suggests that a thermoplastic material could be used in place of or in combination with the thermosetting material used to form the holding portion in Cook and there is certainly no disclosure in this reference regarding the benefits of the thermoplastic elastomer forming the insert having the claimed Young's modulus in flexure and the rubber or thermoplastic elastomer forming the holder part having the presently claimed tensile strength.

As discussed in the present specification, by controlling the tensile strength of the material forming the holder part to 2.5 MPa or less and controlling the Young's modulus in flexure of the thermoplastic elastomer of 2,000 to 5,000 MPa, when the holder part and the insert are fused with each other by heat as they are formed and molded by co-extruding, the flowability of the holder part at the corner sections can be maintained as good as in the conventional art. Additionally, by providing the insert with the claimed Young's modulus in flexture, the grip 2 comprising the insert 4 is given sufficient mechanical strength to firmly hold a flange.

The weather strip disclosed in Cook has a different construction than that required by the claims on appeal and the Cook reference has no disclosure with respect to the required physical properties of the thermoplastic elastomer forming the insert and the rubber or thermoplastic elastomer forming the holder part. As discussed above, the physical properties required in the present claims are critical in

achieving the weather strip of the present invention. Therefore, Appellant respectfully submits that the presently claimed invention is clearly patentably distinguishable over the Cook reference. Reversal of the Examiner is respectfully solicited.

Respectfully submitted,



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CLAIMS APPENDIX

11. A weather strip for a car, comprising:

a grip for attachment to a flange, said grip having a U-shaped cross-section and comprising a holder part made of an olefinic rubber or a thermoplastic resin and an insert embedded in the holder part, said insert consisting essentially of an olefinic thermoplastic elastomer and, optionally, a filler; and

a seal part for performing a sealing function, wherein the thermoplastic elastomer forming the insert has a Young's modulus in flexure of 2,000 - 5,000 MPa and the rubber or thermoplastic elastomer forming said holder part has a tensile strength no greater than 2.5 MPa at 100% extension.

12. The weather strip for a car as claimed in Claim 11, wherein said rubber or thermoplastic elastomer forming said holder part has a tensile strength no greater than 2.0 MPa at 100% extension.

13. The weather strip for a car as claimed in Claim 11, wherein said insert consists of the olefinic thermoplastic elastomer and, optionally, the filler.

14. The weather strip for a car as claimed in Claim 11, wherein the filler is at least one of talc and glass fiber.

15. The weather strip for a car as claimed in Claim 11, wherein the seal part is hollow and integrally molded with the grip.

16. The weather strip for a car as claimed in Claim 11, wherein the holder part is made of ethylene-propylene-diene-methylene solid rubber.

17. The weather strip for a car as claimed in Claim 11, wherein the seal part is made of ethylene-propylene-diene-methylene sponge rubber.

2. The weather strip for a car as claimed in claim 11, wherein said thermoplastic elastomer forming said insert is polypropylene.

EVIDENCE APPENDIX

There is no evidence entered by the Examiner and relied upon by the Appellant in the present application to be contained herein.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings or decisions rendered by a Court or the Board in any proceeding to the present application.